

We claim

Claim 1

A low power DSL modem transmitter, suitable for incorporation in integrated DSL server line cards comprising:

5 first means for generating full power physical frames including a control channel signal component and a data channel signal component when the transmitter is provided with data to transmit; and,

second means for generating low power physical frames having a control channel signal component when the transmitter has no data to transmit; and.

10 third means responsive to the second means for selecting the frames generated by the first and second means.

Claim 2

15 The low power DSL modem transmitter set forth in claim 1 in which the second means includes a low power synchronization signal in the generated low power physical frames.

Claim 3

The low power DSL modem transmitter set forth in claim 2 in which the low power synchronization signal is an idle pattern.

20 Claim 4

A method for operating a low power DSL modem transmitter suitable for incorporation in integrated DSL server line cards, comprising the following steps:

generating first full power physical frames including a control channel and a data field when data is available for transmission;

Generating second low power physical frames having a control channel when no data is available for transmission; and,

5           selectively transmitting the first full power physical frame when there is data to transmit and the second low power physical frame when there is no data available for transmission.

#### Claim 5

10           The method set forth in claim 4 in which the generated second low power physical frame includes a low power synchronization field.

#### Claim 6

            The method set forth in claim 4 in which the generated second low power physical frame includes a low power idle pattern

#### Claim 7

15           In a communication system having a DSLAM including a plurality of DSL modems each having dual power capability in which the modem transmits a reduced power frame suitable to maintain synchronization when it has no data to transmit, a method for controlling the total power dissipated by the DSL modems comprising the following steps:

20           monitoring the data transmission activity of the DSL modems;  
            periodically calculating the power dissipated in the plurality DSL modems transmitting data;

comparing the calculated power dissipated to a predetermined value; and,  
reducing the total dissipated power by limiting the amount of data destined  
for selective DSL modems.

Claim 8

5           The method set forth in claim 7 in which the total dissipated power is reduced  
by buffering data destined for selective DSL modems.

Claim 9

          The method set forth in claim 7 in which the total power is reduced by  
initiating a data flow control regime.

10          Claim 10

          The method set forth in claim 7 in which the total power is reduced by  
selectively discarding physical data frames destined for selected DSL modems.

Claim 11

15          The method set forth in claim 7 in which the total power is reduced by  
applying back pressure to the data source.